



UNIVERSITÀ
DEGLI STUDI DI BARI
ALDO MORO



DIPARTIMENTO
INTERATENEIO
DI FISICA
"MICHELANGELO MERLIN"



Politecnico
di Bari

21

OTTOBRE 2021
ore 16:00

Sede dell'evento

Aula A "Beppe Nardulli"

Dipartimento Interateneo di Fisica

SEMINARIO

Sars-CoV-2 immune system breakaway: the Zn mediated role of accessory proteins

a cura di

prof.ssa **Silvia MORANTE**

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Abstract

An efficient strategy put in place by living organisms to block virus infections is based on the action of proteins belonging to the tetherin family, known as BST2 (bone marrow stromal antigen 2). BST2 has been found to be able in particular to counteract viral replication by first trapping enveloped viral progeny on the surface of infected cells, successively leading to virus internalization and degradation.

BST2 is a homodimer made by two intertwined alpha-helices: the dimeric structure is stabilized by the formation of covalent intermolecular disulphide bonds between pairs of homologous cysteine (Cys) residues belonging to the two monomers.

Viruses have developed antagonizing anti-BST2 actions that are known to involve specific viral proteins.

We make the hypothesis that orf7a, an accessory protein that is also present in SARS-CoV-1 where it is known to interact with many host proteins, acts in the case of SARS-CoV-2 as a BST2 antagonist.

In this seminar I will provide evidence that Zn^{2+} ions play a role in the SARS-CoV-2 virus strategy to escape the immune response mediated by the BST2-tetherin host protein. This conclusion is based on sequence analysis, Molecular Dynamics simulations as well as X-ray Absorption experiments.